

Diagnose This!



A Day with North Jersey's Tech Man

by Jim Taylor

John Anello is all attitude and energy. The attitude is hard to miss when he shows up in a screaming yellow Hummer H2 and steps out in a sharply-pressed, custom yellow shirt with the company logo embroidered on it. Appearance counts, and he looks the part: early 40s, with a trim stocky build, surfer-dude hair, and a confident demeanor. Everything says “Here I am” and “Yes I can.”

Auto Tech on Wheels is a mobile diagnostic shop, and John makes his living solving problems that stump other technicians. The graphics on the Hummer proclaim “Specializing in Computerized Vehicles and Electrical Systems,” “Airbags, Antilock Brakes, Engine Performance, Computer Reprogramming...” His nickname is Tech Man, and that’s on the front fenders, too.

John talks a mile-a-minute, often interrupting himself during a stream of consciousness conversation. He’s always been passionate about learning, and prides himself on the courses he’s taken and the knowledge he’s gained in the field. The ASE Master Technician patches on his shirt lend authority to his credentials.

He works by appointment only, scheduling seven or eight cars each day in metro-northern New Jersey. “I bill a flat fee for diagnosis,” he says, “and I guarantee the diagnosis. I don’t do the repair or change parts, just the diagnosis. I have a great relationship with most of my shops.” He’ll come back to do a next-day recheck at no charge after the repairs have been made. If he can’t figure out your problem in three visits, there’s no charge.

“You’ve got to have a game plan – always! Know what you’re gonna’ do before you start. If you don’t know where you are in an hour, your game plan is wrong. Walk away from it. Think about it. Come back to it tomorrow.”

John works the way he talks, full-tilt and always on the move. Today the first car is a ’95 Nissan 300ZX, with a complaint of the airbag (SRS) light on. The technician at a small gas station had called a few days ago when he couldn’t find the problem. After the H2 is backed into place, John bounds out and opens the Hummer’s rear lid. With practiced ease he hits the lock codes on the drawers and pulls out a scanner. Opening the ZX’s hood reveals an assortment of parts removed by others. “Not good,” he mutters. “Wonder what else is taken apart?”

Turning the ignition key reveals a dead battery. Very dead. “Can’t

work on this one. Even if it started, there’d be other codes set because of the low voltage.” John notifies the techs in the bay of the problem, closes up the equipment, and moves on. He’d been there perhaps six minutes. “You get those every now and then. I don’t waste the time; I just move. Time is money.”

Next is a landscaper’s truck that bucks and stalls. Out comes the MODIS; a quick VIN check reveals a 5.7L ‘R’ motor. The shop’s right on this one, the engine runs very poorly when started.

The MODIS is mum on the problem. No codes, no misfires, and the oxygen sensor is working. “It’s running pig-rich,” John observes. “Drowning in fuel.” The MODIS is ported to the Hummer’s computer display, and the flat-panel screen displays graphs of several engine functions. He’s particularly interested in the long- and short-term fuel trim, but the data is unrevealing. With the intake ducting removed, he climbs over the fender and peers down the throttle body. “Wish it was next week; I’d have my new video camera on a stalk. Then I could see in there.”

Connecting the engine analyzer would have been the next step, but that was balked by not having the MODIS wiring adapter — it wasn’t on board anywhere. “I think I left it in another shop earlier in the week. You’d think they would’ve called me.” He recovers his test equipment, apologizes to the shop owner, and moves on with a promise to return tomorrow.

“Hello there, Ace Auto Repair! Auto Tech on Wheels — talk to me, whad’ya got?” Earpiece and microphone in place, John conducts business at 40 mph while driving to the next job. To avoid interruption during a job, his phone calls are sent directly to voice-mail and he deals with them when underway.

Now one hand keeps the Hummer mostly in its lane; the other works the PalmOne Treo he uses to keep his life together. It holds phone numbers for his thousand-plus clients (including about 200 body shops) and other business data. “Body shop jobs aren’t normal cars; anything is possible with them,” he muses.

“What year? Yeah, 2003 Audi A4. What’za problem? SRS light? Was this car hit? No? Yeah, I can reset that. I’ll be there tomorrow afternoon. Have the car where I can get at it.” The repair

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shop barely gets a word in during the call. That one and three other appointments go into the Treo, with identifying icons for the type of job.

About half of his calls are CEL/MIL or driveability-related. Most of the other half is evenly split between ABS and SRS. He only does a small amount of HVAC work, but he knows that will change as systems become more and more integrated and computer controls play a larger part in those systems.

John says he has to start from scratch on every job, and the all-important visual inspection is often the key. Talking about it winds him even tighter: "You wouldn't believe some of the stuff I've seen that other guys have overlooked. Simple stuff! Easy stuff! Why is 30 percent of our industry illiterate about electricity? Dude — you need power and you need ground! Check those two first and you'll cure a lot of problems."

"I won't deal with a shop that doesn't have a scanner. Too many problems. Too many guys that don't know what they're doing are screwing it up for the guys that do."

The H2's onboard GPS moving-map navigation system leads to the next job. This one's a '97 Kia. The original appointment said 'hard to start when cold or wet' but the gas station tech changes that to 'stalls cold when put in gear.' The day is cool and sunny, and the Sephia starts up without drama. High-idle is good, and nothing unusual shows up on the scan tool.

"Got to go enhanced on this one," he says from under the Kia's hood. "I need factory data. Generic's not gonna' do it." Out comes the Nextec i-Pro. "Use the graphing functions on your scanners. That organizes the data against time. Otherwise, you're just looking at num-



bers." The car cooperates and provides data, but all the graphs seem normal, and the car idles smoothly in gear or in Park. "I hate intermittents," John growls.

The earlier visual inspection had revealed a coolant-fed idle bypass system. "It's not electronic, but that may be the culprit— I've seen those passages clog up with scale. Or the wax pellet's dead. Either way, take it apart. Check it and clean everything," he tells the garageman before packing up. "If that's not it, call me."

When he started 14 years ago, John's business model for Auto Tech on Wheels was a "well-equipped shop without walls." Well-equipped, indeed! Nestled inside the Hummer, John's got at least 11 scanners, including a MODIS, a Tech II, a NGS, DRB-III, Honda's MasterTech, Nextec's i-Pro, Assenmacher's Retriever with Mercedes Benz and BMW software, Volvo's AutoDiagnose, Bosch's Hammer Porsche factory tool, and a variety of generic readers and interfaces.

"If you don't keep in the loop, you're just making problems for yourself. You can't read factory data without the factory tool. I once spent \$1400 on software just to diagnose a Land Rover. It's necessary to buy what you need. Spend money to make money. If you don't invest, you're dead."

Based on his equipment list, he'll be alive for quite a while. Also stashed aboard are a portable Snap-on FGA five-gas exhaust analyzer, test gauges, a smoke machine, ignition and sensor simulators, two Windows-based computers with wireless mouse and keyboard, and a laptop. Everything lives in custom-built locking cases, and the main computers are installed in a vertical rear wall with integrated cooling ducts for the CPUs.

The Hummer pulls into a well kept gas station. "Next one's an



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easy one. Reprogram a replacement Ford lighting module, turn signals aren't working on the car." He parks behind a Lincoln stretch-limo sticking out of the center bay. With its peeling paint, wrinkled fabric roof and missing trim pieces, this limo has seen better days. That should have been the first clue.

"Got the new module?" he asks the young tech. Out comes the NGS. The data is quickly ported to the tool, and the technician installs the new module. In a few moments, the transfer to the new unit is complete. The engine is started and Anello moves the signal lever — nothing.

"Uh, now what?" asks the puzzled employee.

"I guarantee the data transfer, not your diagnosis," says John. "Want me to look at it?"

"Sure."

While the interior trim and cover panels are being removed, John literally runs back to the truck, fires up the computers and inserts a Mitchell OnDemand CD. He says he spends about \$5000 a year just on data services, and more than twice that to update the software in his tools.

The lighting control wiring diagram appears on the screen. As an aside he says, "I feel sorry for the kid, but he called the shot."

Diagram in hand, he runs back to the limo and sets to work with a test light at the column switch.

A few minutes later, and upside-down under the dash, he's traced the lighting circuits and made each rear cluster light individually. An explosion of mild profanity marks the dual discoveries of several cut wires at a main connector and an aftermarket flasher patched into the system. Evidently, someone bypassed a failed control module with an external flasher. Judging by the large burn-mark on the flasher case, the 20amp flasher had been working beyond its limit.

"Dude! Either fix these wires or get another flasher. A really heavy-duty one. Didn't you see the cut wires when you checked it?"

"Yeah, I saw 'em," comes the reply. "I didn't know what they were."

Visual inspection. Knowledge. Solutions. John doesn't judge, he just prints the bill for the reprogramming and the diagnostic work, gives it to the manager, and moves on.

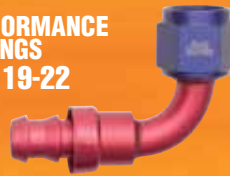
John started "messing with cars" in his backyard during high school. A varied career path lead to work as dealership technician. "I

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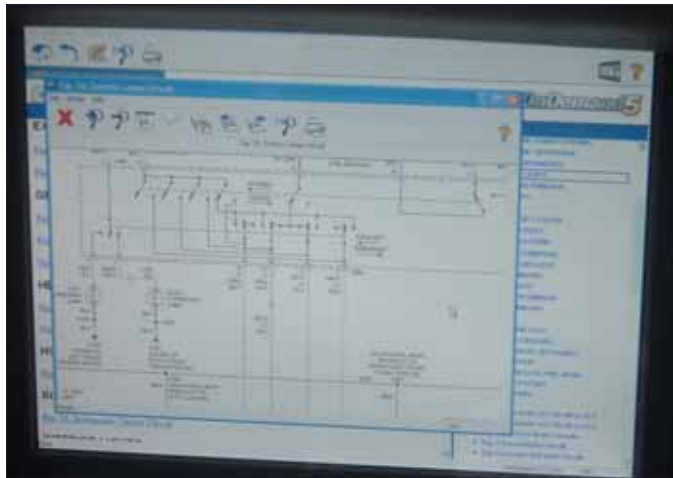
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was always the guy with my nose in the book. I wanted to know how everything worked. I was the guy the others would come to when they couldn't figure something out." But working in the dealership wasn't satisfying; John started Auto Tech on Wheels in 1991.

His 2004 Hummer is an attention-getter. "Next to word-of-mouth, this is my best advertising," he says. "That's mostly why I got it. Guys see it go by their shop, next time they have a problem they call me. And I can get anywhere anytime; I don't miss appointments on snowy days." He puts in about 30,000 miles per year, and "uses up" a truck about every four years. The customized H2 is new this year, replacing a tired yellow van.

When the business is parked for the night, John's usually still at full-throttle. Some nights he's sitting in class, other nights he's teaching one. He admits it's hard to balance his constant learning with the needs of Jonna, his five-year-old daughter. Spending time with her is important, and they're going ice skating in a few days. Jonna has already decided on a purple Hummer for her first car.

He also builds his own computers at home, and is working on upgraded units for the back of the H2. "Easier to do it my way than convince somebody else," he observes. "This way I always know what I've got." For other diversion, there's a Corvette – yellow, of course – in the garage.

For now, there's three more cars in the Treo. A late 90's Explorer is quickly dispatched with a preliminary diagnosis of a failing timing chain tensioner, but the shop had been fooled by a persistent CEL. "Chain goes slack on start-up, timing changes. Engine computer can't keep up with it." John prints out two related Service Bulletins from the wireless printer. He moves on.

On the other side of Hackensack, an owner waits with the next car. "It just cuts off in traffic. Done it twice this week," he says. Thirty minutes later, after much system scanning and wire-jiggling, John's goes for a test drive in the '97 Grand Prix. "Didn't do a thing," he says. "No codes, nothing on the scanner. I may have to take that one for a weekend and put 50 miles on it. I hate intermittents and that's two for today. Strange." Everything is carefully explained to the owner and the shop staff.

The owner nods and says he understands. "Last guy didn't give me nothing but mechanic-speak," he says. "John explains it so I know about it."



It's getting dusky as the Hummer parks in front of the day's last appointment. The white Jeep Cherokee had been parked at the curb when it was hit hard in the rear, spun around and hit again. After body repairs, the complaint is "won't start / no spark."

Anello jokes with the shop staff as he gets the test equipment out. Turning on the Jeep's ignition gives an immediate "No Bus" message on the dash. He says, "OK, let's see who's not talking here." The Chrysler tool shows "PCM Inactive on Bus."

He runs to the Hummer and prints a wiring diagram for the controllers. It's hard to read the chart in the deep shadows, and John pulls out a pair of stylish reading glasses. "More than fifty thousand dollars for the truck," he smiles. "Drugstore reading glasses — a dollar! Priceless!"

He uses colored markers to highlight paths for battery power, key-on power, ground paths and other circuits. He notes the wire colors for certain critical sensor circuits — crank, cam and the like — and begins a wire-by-wire check. Everybody's home when the engine cranks, but the PCM isn't getting the message.

Re-visiting the wiring diagram gives the location of a key fuse, and inspection shows it's failed. That may explain a lot — the fuse also powers the fuel pump. New fuse, key-on, and now the all the controllers are chatting happily with each other across the databus. The engine cranks and sputters, but doesn't light.

"Why did that fuse blow?" John wonders. "Not likely that the PCM shorted...gotta' be the fuel pump. And this was hit in the rear." The shop guys nod in agreement.

A circuit-checker applied to the socket for the fuel pump relay shows that one side of the pump circuit is open. "Gotta' be either wiring to the back or the pump itself," John notes. "No other choices."

He borrows a foam pad and scrunches under the rear of the Jeep. After he climbs back out, he tells the technician, "I've got power and ground back there. You need a fuel pump!" Case closed.

The breeze turns chilly in the setting sun as John Anello closes up shop for the day. He coils test cables and wipes off the keyboard and screen. "This was an interesting day," he reflects. "Two intermittents and some butchered wiring. I learned something today." ■